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VOL. 7 No. 11

MARCH 15, 1957

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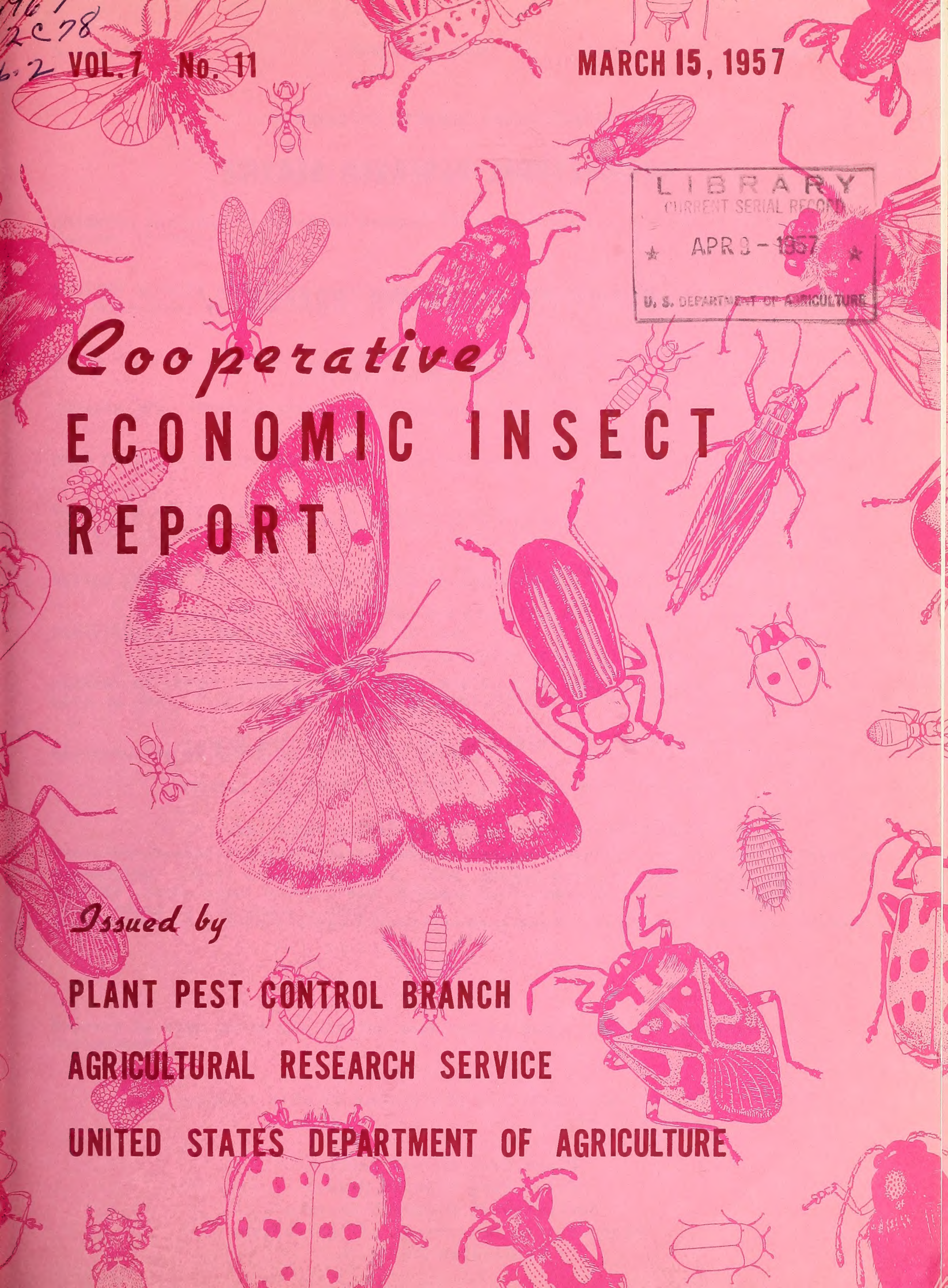

Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL BRANCH
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Branch serves as a clearing house and does not assume responsibility for accuracy of the material.

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Plant Pest Survey Section
Plant Pest Control Branch
Agricultural Research Service
United States Department of Agriculture
Washington 25, D. C.

Volume 7 March 15, 1957 Number 11

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GREENBUG infestation found in several Texas Panhandle counties but none found in Kansas. (p.191).

SPOTTED ALFALFA APHID increasing in Yuma, Arizona area; remains light in Oklahoma and Louisiana. (p.191).

First reported appearance of POTATO LEAFHOPPER by States - 1956. (p.192).

SOYBEAN CYST NEMATODE reported from Arkansas. (p.194).

PLUM CURCULIO adults appearing in peach trees at Fort Valley, Georgia. (p.194).

VEGETABLE WEEVIL of concern in tobacco plant beds in several Georgia counties. (p.196).

COTTON INSECT situation in lower Rio Grande Valley, Texas. (p.196).

Distribution of BROWN WHEAT MITE. (p.193).

SUMMARY OF INSECT CONDITIONS - 1956 - New York (p.198), Illinois (p.201), Ohio (p.204).

Distribution of RANGE GRASSHOPPERS. (p.208).

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CORRECTION: CEIR, Index to Vol. 6, 1956, issued March 8, 1957, under SPECIAL REPORTS (title page) should read "Soybean cyst nematode - found in Missouri - 1125, found in Tennessee - 1096."

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Reports in this issue are for the week ending March 8 unless otherwise designated.

WEATHER OF THE WEEK ENDING MARCH 11, 1957

Thermal contrasts between cold, high-pressure areas and the warmer air mass conditions preceding and following them were associated with storm centers and frontal activity which brought the gusty winds and variable temperature and precipitation pattern characteristic of March weather. Temperatures for the week averaged near normal to 8° above in the Southwest and the New England States, while below normal departures were observed over most of the intervening area. Greatest below normal departures were 8° occurring in Montana and 10° in South Carolina. On Friday and over the weekend minimum temperatures reached freezing in central Texas, along the central Gulf coast and in northern Florida. In contrast, Thursday and Friday maximum readings in the southern desert regions of California and Arizona reached the high 80's and lower 90's. Precipitation occurred daily in the Northwest under the influence of Pacific coastal disturbances. Here weekly totals were moderate to heavy throughout Washington and Oregon, in western Idaho, and northern portions of California and Nevada. Snowfalls of up to 3 and 5 inches in the Texas and Oklahoma Panhandle sections, southwestern Kansas, and southeastern Colorado brought beneficial moisture, totaling about ½ to over 1 inch locally to these drought areas. A storm center in the Southeast which moved out over the Carolinas and up the coast was responsible for most of the moderate to heavy accumulations observed in the country east of lines joining east-central Arkansas with Cleveland, Ohio and Pensicola, Florida. Greatest totals for the week were observed along the North Pacific coast where up to 6 inches were recorded, and in the Florida area west of Lake Okeechobee where 3 to 5 inches were reported. Strong winds occurred in many sections during the week. At Milford, Utah, gusts reaching 58 m.p.h. raised dust on Saturday. Dust was also raised by high winds in local areas of South Dakota, Nebraska, Colorado, Kansas and Missouri. In Florida winds reached 40 to 50 m.p.h. on Friday and many other east coast locations reported similar speeds under the influence of coastal disturbances.

Peak gusts of 60 m.p.h. were reported at Austin, Texas in connection with a hail and windstorm that hit the city on March 11. Hail size was 1 inch in diameter. Preliminary damage estimates of 20 thousand dollars include only that to aircraft on the field. Snowfalls occurred as far south as Birmingham, Alabama, where 1 inch was recorded on Friday, but the snow cover at lower elevations now is confined mainly to northern and eastern North Dakota, northern two-thirds of Minnesota, northern Wisconsin and upper Michigan. Depths increased in the higher elevations of the Appalachians and Far West during the period. Present depths in the West now include 174 inches at Paradise Ranger Station, Washington; 96 inches at Crater Lake, Oregon; 58 inches at Twin Lakes, California and 62 inches at Foxpark, Wyoming. Ice thickness reports from Maine include31 inches at Greenville and 23 inches at Millinocket. Reports from other sections are 24 inches at Marquette, Michigan; 27 inches at Bismarck, North Dakota; 10 inches at Huron, South Dakota; and 20 inches at Green Bay, Wisconsin. (Summary Supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - TEXAS - Survey during February found infestations in panhandle counties of Potter, Oldham, Deaf Smith, Castro, Parmer, Moore, Sherman, Hansford and Ochiltree. Heaviest populations were found in Castro, Swisher, Deaf Smith and Parmer Counties. Damaging numbers in few wheat fields, mostly irrigated, in Castro County with counts from 0 to 200 per row foot. Highest counts in Hansford County were 10 to 30 per row foot in dryland wheat. No infestations were found in 9 other panhandle counties and in 9 counties south of the panhandle area. (Turney). KANSAS - None found in State since January 1. (Matthew). LOUISIANA - Light in Red River Valley. (Oliver).

BROWN WHEAT MITE (Petrobia latens) - None found in survey of wheat and barley fields in central area. (Matthew).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Common in winter oats in Rogers County; 50 to 75 per linear foot of row one field. (Coppock).

A STALK BORER (Chilo loftini) - CALIFORNIA - Heavily infesting volunteer milo in Bard area of Imperial County, February 26. Up to 6 larvae per single stalk. (Cal. Coop. Rept.).

GRASSHOPPERS - CALIFORNIA - First instar nymphs of Esselenia vanduzeei appeared on rangeland six miles south of Coalinga. Counts on February 26 indicated present infestation at two per square yard. (Cal. Coop. Rept.).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Medium infestation on 2 to 3 acres of barley at Mesa March 4, with no apparent damage. Late planted barley not infested. Collops vittatus and Hippodamia convergens present in small numbers. (Ariz. Coop. Rept.). TEXAS - Very heavy on small grain demonstration in Rockwall County. (Hawkins).

MEALY PLUM APHID (Hyalopterus arundinis) - CALIFORNIA - Heavy populations February 28 on giant reed growing along canal banks in Calexico district of Imperial County. (Cal. Coop. Rept.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - OKLAHOMA - Light infestations in wheat in Beckham County (Hudson) and 2 to 3 larvae per linear foot of row in scattered fields in Garfield County. (Owens).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - LOUISIANA - Populations 3 to 15 per 100 sweeps in alfalfa, oats and clover in Bossier, Red River, Natchitoches, Rapides and Avoyelles Parishes. (Oliver).

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata) - OREGON - Actively feeding on clover at Corvallis, March 8. (Crowell).

PEA APHID (Macrosiphum pisi) - ARIZONA - Up to 10-15 per sweep in several alfalfa fields at Yuma. Not serious but building up some areas. Few found parasitized and some attacked by fungus. (Ariz. Coop. Rept.). TEXAS - Two per 10 sweeps in vetch and alfalfa field in Rockwall County. (Hawkins). LOUISIANA - Populations heavy in localized areas of burclover in Natchitoches, Rapides and Avoyelles Parishes. Light populations, 2 to 10 per sweep, in alfalfa in Caddo, Bossier, Red River, Natchitoches and Rapides Parishes. (Oliver).

SPOTTED ALFALFA APHID - ARIZONA - Increasing on Yuma Mesa March 6 and to lesser degree in Yuma Valley. About half of fields on Yuma Mesa require treatment. Increase very rapid some fields. Lady beetles not numerous in many heavily infested fields. Fungus still found to some extent in Yuma Valley. (Ariz. Coop. Rept.). UTAH - Not evident at Saint George. (Hughes). TEXAS - Medium to heavy infestations on alfalfa in 1 field in Rockwall County. (Hawkins). OKLAHOMA - Populations throughout State static and generally very light. (Coppock). KANSAS - No infestations found in alfalfa fields in 5 southwest counties (DePew) and 11 counties in central area. Aphids found in one field in Marion County from plants examined in laboratory. No infestations of economic importance exist in State at present. (Matthew). Very few being recovered from plant samples of southeast and east central area. (Burkhardt). LOUISIANA - Populations very light generally in alfalfa over entire Red River Valley with heaviest 10 per sweep. (Oliver).

COWPEA APHID (Aphis medicaginis) - TEXAS - Light infestation 2 fields of alfalfa in Kaufman County. (Hawkins).

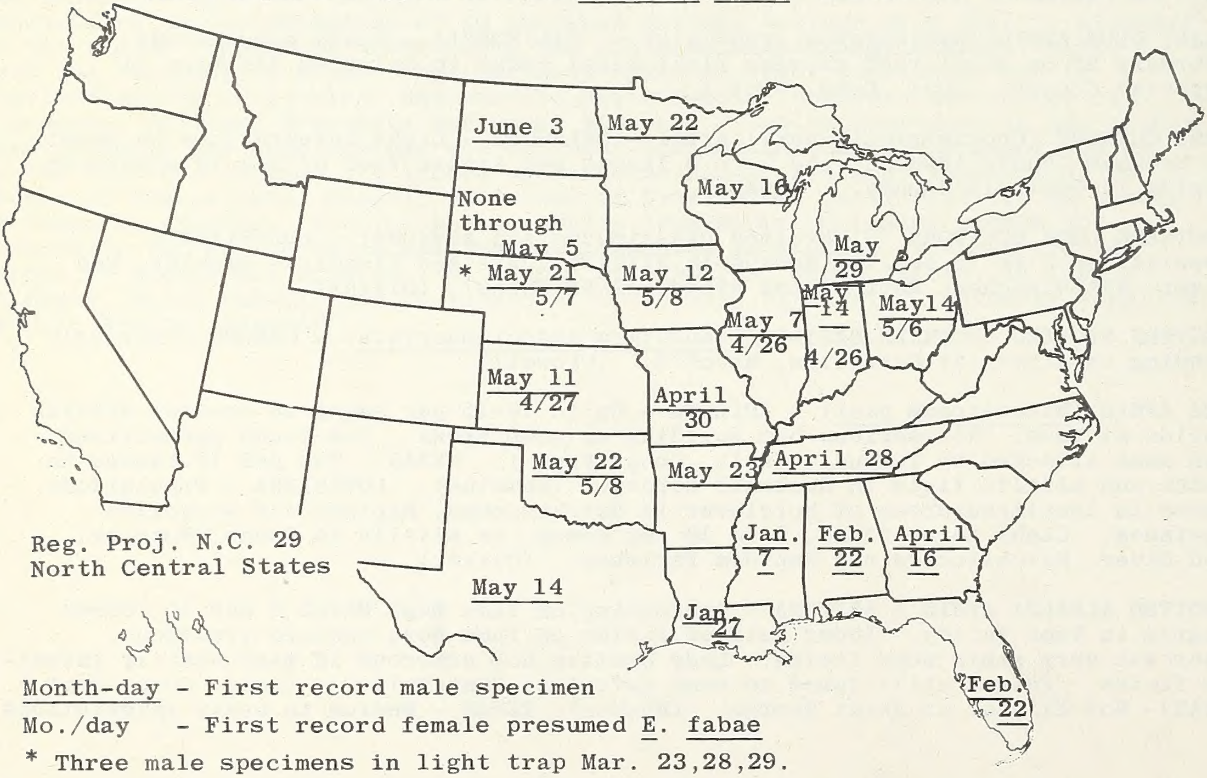
THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - LOUISIANA - Ranged from 2 to 10 per 100 sweeps in alfalfa in Red River, Bossier, Caddo and Natchitoches Parishes and 7 per 100 sweeps in white clover in Rapides Parish. (Oliver).

GREEN CLOVERWORM (Plathypena scabra) - LOUISIANA - Populations increasing in clovers and alfalfa with 12 to 25 per 100 sweeps in Bossier, Caddo, Natchitoches, Red River, Rapides, Avoyelles and St. Landry Parishes. (Oliver).

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - Larvae and adults present in some alfalfa fields in Albemarle (Evans), Amelia (Morris, Holmes) and Isle of Wight (Boush) Counties. Adult activity in Fluvanna County. (Smith).

TARNISHED PLANT BUG (Lygus lineolaris) - LOUISIANA - Populations building up to 20 to 45 adults and nymphs per 100 sweeps in alfalfa in Rapides and Natchitoches Parishes. (Oliver).

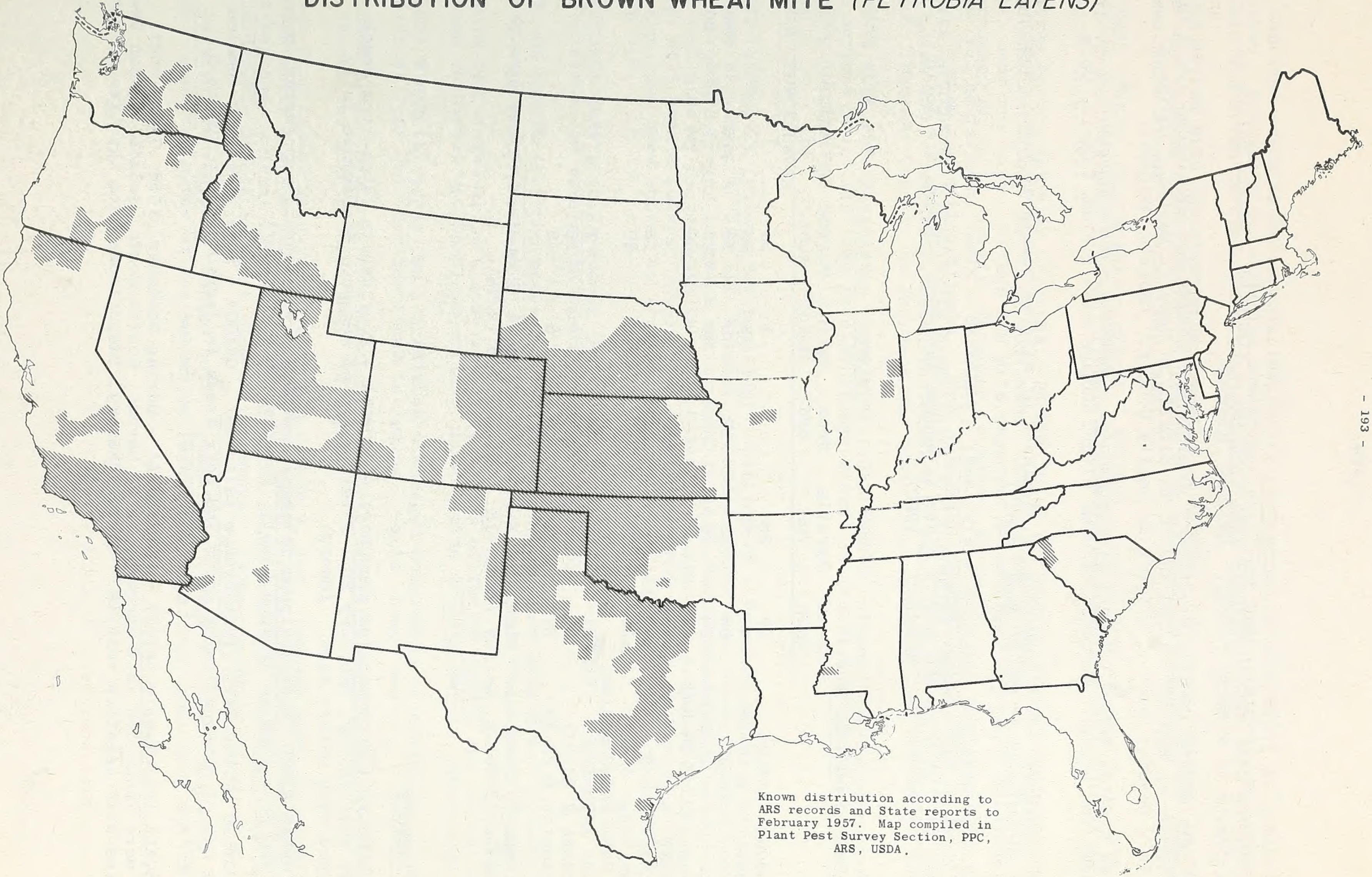
First Reported Appearance of Empoasca fabae by States - 1956



Reg. Proj. N.C. 29
North Central States

Month-day - First record male specimen
Mo./day - First record female presumed E. fabae
* Three male specimens in light trap Mar. 23,28,29.

DISTRIBUTION OF BROWN WHEAT MITE *(PETROBIA LATENS)*



Known distribution according to ARS records and State reports to February 1957. Map compiled in Plant Pest Survey Section, PPC, ARS, USDA.

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - VIRGINIA - Adults active in Amelia County in alfalfa fields. (Holmes, Morris).

CLOVER LEAF WEEVIL (Hypera punctata) - LOUISIANA - Counts per 100 sweeps are 6 in white clover in Rapides Parish and 10 in alfalfa in Bossier Parish. (Oliver). VIRGINIA - Feeding some on alfalfa in Amelia County. (Morris, Holmes).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - More abundant on alfalfa than past two years. Evidence of some slight damage some fields. (Ariz. Coop. Rept.).

THRIPS - ARIZONA - Very numerous in terminals of alfalfa plants at Yuma. Most new leaves show damage. (Ariz. Coop. Rept.).

SOYBEAN CYST NEMATODE (Heterodera glycines) - ARKANSAS - First infestation for the State found in Mississippi County, northeast area. Identification was made February 19. This is the fourth State to become infested. Others are North Carolina, Tennessee and Missouri. (PPC).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrotis yps.	Prod. orn.	Perid. marg.	Feltia subt.	Heliothis zea	Trich. ni.
TEXAS							
Beaumont 2/16-28	20	36		1	58		
Greenville 2/16-28	41	3		19	26		
Weslaco 2/16-28	68	58	12	9	76	165	389
Winter Haven 2/16-28	90	78	1	41	25	9	30
Brownsville 2/24-3/2	3				48	31	
LOUISIANA							
Curtis 2/7-3/5	220	96	11	99	15		3
Baton Rouge 3/2-7	20	15		6	20		1
SOUTH CAROLINA(Counties)							
Oconee 2/23-3/1	21	7	8		1		
Florence 2/23-3/1	49	9	7	9	13		
Charleston 2/18-24	57	24	3	3	12		

Additional Collections: FLORIDA - Feltia subterranea: Homestead,(2/19)-9; Monticello,(2/26)-2; Quincy,(2/25)-13; Gainesville,(2/28)- 9.

FRUIT INSECTS

PLUM CURCULIO (Conotrachelus nenuphar) - GEORGIA - Four adults taken from peach tree at Fort Valley, February 26. First record of season. One female fully developed with mature eggs. (Snapp).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OREGON - Young aphids appearing on apple and pear buds in Jackson County, February 28. (Gentner).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - OREGON - Some wintering females coming out of hibernation on apple and pear trees in Jackson County, March 5. (Gentner).

HALL SCALE (Nilotaspis halli) - CALIFORNIA - During December, 1956, 1,262 host trees were inspected in 5 orchards in El Dorado, Contra Costa, Solano and San Benito Counties with negative results. During January, inspections were negative of some

3,305 host trees in Chico area, 682 hosts in Gridley and 319 hosts in township of Durham. Reinspection of Durham community, which was begun in 1955, was completed. Hosts destroyed in Chico area totaled 137. (PPC - Western Reg.).

YUMA SPIDER MITE (Eotetranychus yumensis) - ARIZONA - Becoming numerous on citrus at Yuma causing discoloration of leaves in 2 groves; webbing common on leaves in some lemon blocks. (Ariz. Coop. Rept.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Increasing on citrus at Yuma but not serious yet most groves. Trouble may develop if warm weather forces new growth. (Ariz. Coop. Rept.).

Citrus Insect Activity, Florida: PURPLE SCALE activity increased and further increase expected. Hatching continues. FLORIDA RED SCALE activity increased and will continue high. CITRUS RED MITE expected to decline. APHID infestations increased sharply. (Pratt, Thompson, Johnson, March 7).

NAVEL ORANGEWORM (Paramyelois transitella)[1]-CALIFORNIA -Ninety percent of dates on palms and on ground infested in former U.S. Dept. of Agri. Exp. Sta.farm at Bard, Imperial County, on February 26. (Cal. Coop. Rept.).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Female taken February 28 in Mexican fruit fly trap in city of San Diego. Catch unusual at this time of year. (Cal. Coop. Rept.).

TRUCK CROP INSECTS

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Populations of overwintering adults beginning to die off; however, no small nymphs were found. Largest area for probable spring increase anticipated to be in Derby Acres-Taft-Maricopa area on west side of San Joaquin Valley. Collections run from 1 per 50 sweeps to high of 3 per 10 sweeps. Check made eight days after sprays in Jacalitos Canyon in Coalinga area showed no live leafhoppers in 100 sweeps. (Cal. Coop. Rept., Mar. 1).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Moderate infestations on turnips in Jasper County. (Milner).

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Light to heavy widespread infestations on spinach and cole crops in Dimmit County. (Richardson). GA. - Heavy Thomas County. (Johnson).

THRIPS-TEX.-Light-heavy widespread infestations of Thrips tabaci and others on onions in Dimmit and Zavala Counties. Some fields treated twice. (Richardson).

A LEAF MINER (Liriomyza sp.) - ARIZONA - Damaged cotyledons of cantaloup in many fields at Yuma but very few found in leaves. (Ariz. Coop. Rept.).

CABBAGE APHID (Brevicoryne brassicae) - GEORGIA - Light infestations on cabbage in Thomas and Lowndes Counties. (Johnson).

Truck Crop Insect Situation, lower Rio Grande V.,Tex. CABBAGE APHID and CABBAGE LOOPER still a major problem. TOMATO FRUITWORM feeding on leaves of young plants. Tetranychus marianae infestation in field of young tomatoes. CUTWORMS causing considerable damage in few fields of cucumbers. (Wene, Deer).

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[1] Paramyelois venipars changed to P. transitella (Walk.). See - Heinrich, C. 1956. American moths of the subfamily Phycitinae. U.S. Nat. Mus. Bul. 207: 47.

TOBACCO INSECTS

TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) - GEORGIA - Light to moderate infestations on tobacco plant beds in Thomas, Brooks and Berrien Counties. (Johnson).

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - GEORGIA - Light to moderate infestations on tobacco beds in Colquitt, Grady , Brooks, Berrien, Coffee and Appling Counties. Moderate to heavy infestations in Tattnall, Thomas and Lowndes Counties. (Johnson).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

ENGRAVER BEETLES (*Ips* spp.) - ARKANSAS - Few trees killed in Boone County. Continued scattered spots of damage in Mansfield area and south central counties including Garland, Saline, Hot Springs, Grant, Dallas, Drew and Bradley Counties. Control measures range from salvage to burning of infested trees. No spraying reported during February. (Ark. For. Comm., March 1).

BROWN-TAIL MOTH (*Nygmia phaeorrhoea*) - NEW HAMPSHIRE - Light scattered infestation spread over about 2 square miles in town of Weare. State Entomologist advises webs will be clipped and burned. (PPC - Eastern Reg.; Jan. Rept.).

SAN JOSE SCALE (*Aspidiotus perniciosus*) - VIRGINIA - Sufficiently heavy on hosts along highways in Washington County to warrant spraying operations. (Rowell).

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) - LOUISIANA - First observed cluster in 1957 was in Lincoln Parish, March 6. (Oliver).

BLACK TURPENTINE BEETLE (*Dendroctonus terebrans*) - ARKANSAS - Activity at low-level over State. (Ark. For. Comm., Mar. 1).

SPRING CANKERWORM (*Paleacrita vernata*) - INDIANA - Appeared in large flights around lights in Ohio County, February 21-25. Few found in eastern Indiana in 1956 after being extremely scarce since 1947. (Osmun).

SCALE INSECTS - ARIZONA - Heavy infestation on Pfitzer juniper at Mesa. Some yellowing of foliage and killing of branches. (Ariz. Coop. Rept.).

SPIDER MITES - UTAH - Problem on number of blue spruce, Douglas-fir, ponderosa pine and cedars in Salt Lake County. (Parrish).

BULB MITES - OKLAHOMA - Found on gladiola corms in retail store in north central area. (Stiles).

A BUD MITE (*Aceria paradianthi*) - CALIFORNIA - Survey of 524,000 square feet in Contra Costa County and 140,000 square feet of carnation plantings in San Francisco County were negative. This bud mite of carnations appeared in San Francisco Bay area in San Mateo and Alameda Counties in 1956. To date it has not been found in any other bay area counties. (Cal. Coop. Rept., Mar. 1).

COTTON INSECTS

Cotton Insect Situation Lower Rio Grande Valley, Texas: If moisture hold and warm weather continues, insects should be less destructive early in the season. CUTWORMS caused some damage in San Benito and Los Fresnos areas with severe damage to one field near San Benito. All damage occurred in fields that followed vegetables or were very trashy during winter. FLEAHOPPERS built up in one early-planted field northeast of Raymondville. Treatment may be required if increase continues. (Deer).

INSECTS AFFECTING MAN AND ANIMALS

SHEEP SCAB MITE (*Psoroptes equi ovis*) - VIRGINIA - Found on 760 of 8,214 sheep inspected during month of January, of which 514 were dipped. (Va. Livestock Health Bull., Feb. 1957).

NORTHERN FOWL MITE (*Ornithonyssus sylviarum*) 1/ - MARYLAND - Light infestation on layers at Centerville, Queen Annes County. Det. G. W. Wharton. (U.Md., Ent. Dept.).

SCREW-WORM (*Callitroga hominivorax*) - GEORGIA - One steer heavily infested in Appling County, February 12. (Johnson).

CATTLE GRUB (*Hypoderma* sp.) - KANSAS - In Ellis County, 90 head of cattle examined of which 17 were infested. Counts ranged from 0 to 7 per animal and averaged 0.3 per animal. (Matthew).

STORED PRODUCTS INSECTS

KHAPRA BEETLE (*Trogoderma granarium*) - CALIFORNIA - Tracing shipments from warehouse recently found reinfested at Blythe so far resulted in finding five new infestations in Imperial, Riverside and San Bernardino Counties. (Cal. Coop. Rept., Mar. 1). OKLAHOMA - Inspection of 20 feed and seed establishments in northern area negative. (Coppock). VA.-Survey of 203 mills in Jan.and Feb. was negative. (Watson).

POTATO TUBERWORM (*Gnorimoschema operculella*) - UTAH - Damage to two lots of potatoes in Cedar City made regular sorting methods impossible. (Sjoblom).

Stored Grain Insects, Oklahoma: Total of 20 feed and seed establishments in northern area examined with most infestations light with exception of heavy infestations in 1 premises each of rice weevil, Indian-meal moth, German cockroach and saw-toothed grain beetle. (Coppock).

MISCELLANEOUS INSECTS

POWDER POST BEETLES - WASHINGTON - Damaging plywood flooring at Pullman.(Telford).

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - LOUISIANA - Infestation very severe in many southern parishes. Counts of 50 to 75 mounds per acre very common. About 38 parishe of State are infested. (Oliver).

1/ *Bdellonyssus* changed to *Ornithonyssus*. See - Evans, G. O. 1955. Some British mites of economic importance. Brit. Mus. Nat. Hist. Econo. Ser. 17:3

SUMMARY OF INSECT CONDITIONS - 1956

NEW YORK

Reported by A. A. Muka *

Highlights: A delayed cold spring and late frosts, plus an unusually cold and wet summer over the central and western part of New York State strongly affected insect populations. Eastern and northern New York was very dry from July until fall. The pea aphid on alfalfa and the European corn borer on corn and potatoes were the two most troublesome insects in 1956.

Cereal and Forage Crop Insects: ALFALFA SNOUT BEETLE (Brachyrhinus ligustici) first appeared above ground on May 1 at Minetto in Oswego County. In the area adjoining the village of St. Lawrence the infestation was heavy numbering 25 to 50 per square yard but in general the infestation was light and spotty. ALFALFA WEEVIL (Hypera postica), first found in New York at Westtown on June 27, 1955 has continued to spread and can now be found nearly 60 miles further east from where it was originally found. Damage was negligent during 1956 and only 1 or 2 larvae could be taken in 100 net sweeps. No new counties were found to be infested. PEA APHIDS (Macrosiphum pisi) were unusually heavy during 1956 on alfalfa and in fact were at their highest level during the past ten years. The areas most heavily infested were the Southern Tier Counties, the Finger Lakes Counties and the Hudson Valley. Counts of over 1000 aphids per sweep were not unusual although most counts ran between 100 and 300 aphids per net sweep. MEADOW SPITTLEBUG (Philaenus leucophthalmus) was first observed on May 14 at Ithaca. Egg hatch was greatly delayed by the cold spring although infestations reached high levels in some areas especially the Hudson Valley and as far northward as Essex County and in the Southern Tier Counties, little hay damage resulted as the cool wet season stimulated plant growth and retarded the spittlebug. Most growers were rather surprised to find heavy infestations of spittlebug nymphs at the time of first cutting as the life cycle is usually completed before harvest begins in most areas of New York. Spittle masses were recorded as late as July 25 which is very late for New York. POTATO LEAFHOPPER (Empoasca fabae) was first taken in net sweeps on June 5 and in lantern catches on June 13. The infestation on lima beans and green beans rose to such levels that 20 to 100 could be taken per net sweep but the infestations in alfalfa remained at a very low level. GRASSHOPPERS (Melanoplus femur-rubrum and M. bivittatus) were at a low level throughout New York except in Albany, Schenectady and Rensselaer Counties where unlike the rest of the State dry conditions prevailed after a cool, wet spring. Here M. femur-rubrum and M. bivittatus caused some damage to grass, corn and other cereals. Heavy swarms of grasshoppers invaded several of the nearby metropolitan areas causing much annoyance and speculation. ARMYWORM (Pseudaletia unipuncta) caused little damage during the 1956 season although a few specimens could be found in most corn fields and meadows. EUROPEAN CHAFER (Amphimallon majalis) was very late in appearing as an adult. Flight was prolonged through the season and of less intensity than usual. Larval development was late with many second-instar larvae being present in October. In general infestations of chafer were at a low level and possibly were at their lowest level in ten years. Unlike winter 1955-56 when 30 to 80 percent of some wheat fields were destroyed, no injury has been noted in winter wheat to March 1957. Many larvae are passing the winter in the second instar. In one area near Marion which is being studied, 25 percent of the larvae are passing the winter in this manner. The chafer continues to spread with the greatest new area of infestation being the city of Syracuse and area north and east of that city. CLOVER ROOT BORER (Hylastinus obscurus) was present in the Oswego area in numbers averaging approximately 9.9 larvae per root and infestations averaged nearly 42 percent in first harvest year clover fields and approximately 70 percent in second harvest year

* Other reporters include G.G. Gyrisco, G.E. R. Hervey, A.C. Davis, F.L. McEwen, J.A. Adams, P.H. Wooley, J.G. Matthysse, J.A. Naegele, and H. H. Schwardt.

clover fields. Other insects which appeared in destructive numbers were TARNISHED PLANT BUG (Lygus lineolaris), Sitona hispidula, Sitona flavescens and Tychius stephensi. Other Lygus were present as were several clover head weevils but were not of great importance except in red clover seed-growing areas.

Vegetable and Truck Crop Insects - West New York: The most important insect pest of cabbage and related crops in western New York in 1956 was the IMPORTED CABBAGEWORM (Pieris rapae). It was present in cabbage, broccoli and cauliflower plantings from late July until the end of September, and it caused moderate to severe injury. The CABBAGE LOOPER (Trichoplusia ni) which caused so much damage in 1955 was of little importance in 1956. The population was beginning to build up late in the autumn, which probably means that it will be an important pest in 1957. The CABBAGE APHID (Brevicoryne brassicae) and the CABBAGE MAGGOT (Hylemya brassicae) were of relatively little importance. The TARNISHED PLANT BUG was rather abundant in bean plantings and caused moderate injury to the seeds and blossoms of lima beans. SEED-CORN MAGGOTS (Hylemya cilicrura) were present in normal abundance but the cold wet weather during May and June prolonged their activity considerably with essentially no fly-free period during these months. The PEA APHID (Macrosiphum pisi) did not develop in peas until late in the season but favorable weather in early July produced rapid colonization with resulting serious injury. Some fields were a total loss. VINEGAR FLIES (Drosophila spp.) in tomatoes were of little or no importance due to the cold wet season. The MEXICAN BEAN BEETLE (Epilachna varivestis) was about normal in abundance and caused some damage to red kidney and lima beans during August and September. Its first appearance was retarded almost two weeks by cool weather.

Corn Insects - Hudson Valley: CORN FLEA BEETLE (Chaetocnema pulicaria) was present on early corn in May and June but not abundant. Control efforts were mostly limited to one spray. Incidence of bacterial wilt, which the flea beetle carries, varied up to about 2 percent. The insect remained scarce until September when 5 to 100 could be taken in 100 sweeps of roadside grass near corn. EUROPEAN CORN BORER (Pyrausta nubilalis) was more abundant than in the past five years and surpassed the earworm in importance. Parasites were scarce and life cycle stages at least ten days later than usual. In unsprayed corn the first-generation larvae were abundant, affecting up to 90 percent of the ears. Infestation of ears harvested in August was negligible. The second-generation larvae were abundant in unsprayed plantings harvested in mid-September and up to 70 percent of the ears were injured. Spraying was almost universal in commercial fields and the infestations of sprayed ears at the peaks were mostly under 5 to 10 percent. Counts of larvae in stalks of sweet corn in October showed 6 per stalk in one field, 2 per stalk in another, and less than one in several others. Field corn seemed to escape heavy infestation in most fields, possibly because much of it passed the susceptible stage between broods. CORN EARWORM (Heliothis zea) was much less abundant than in 1955. Larvae were detected in occasional tassels in late June. Moth catches in a black light trap began July 23 but were light until September. The infestation of unsprayed ears was 15 - 30 percent. Insecticide application was almost universal in commercial fields and a four-day spray interval was used until there came an outburst of moth activity in early September after which a three-day schedule was followed till the killing frost of September 25. FALL ARMYWORM (Laphygma frugiperda) was present but unimportant in sweet corn. Likewise ARMYWORM (Pseudaletia unipuncta) and BLACK CUTWORM (Agrotis ypsilon) caused noticeable thinning of only a few stands. CORN SAP BEETLES (Carpophilus sp.), present but unimportant, for it was abundant only in corn infested by borers and earworms. CORN LEAF APHIDS were more abundant than usual, causing the blackening of foliage with fungus in many fields. JAPANESE BEETLE (Popillia japonica) was not a pest in commercial fields with one possible exception in a newly-infested area (Saugerties)

Fruit Insects: EUROPEAN RED MITE (Metatetranychus ulmi) is showing resistance to phosphates in a few western New York plum orchards. FRUIT TREE LEAF ROLLER (Archips argyrospila) was reported as occurring in large numbers in the Hudson

Valley. PLUM CURCULIO (*Conotrachelus nenuphar*) had peak emergence on May 30 in western New York. EUROPEAN SAWFLIES (*Hoplocampa testudinea*) were abundant in neglected Hudson Valley orchards. CODLING MOTH (*Carpocapsa pomonella*) activity was reported as light from most areas in the State. RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) resistance to DDD definitely established in a few western New York orchards. Severe TARNISHED PLANT BUG (*Lygus lineolaris*) injury observed in a number of peach orchards. APPLE MAGGOT (*Rhagoletis pomonella*) emergence was one week later than usual. Prolonged emergence late in season caused injury in some orchards. STRAWBERRY LEAF ROLLER (*Ancylis comptana fragariae*) caused considerable damage in strawberry plantings throughout the State. TWO - SPOTTED SPIDER MITE (*Tetranychus telarius*) was severe in strawberry plantings on Long Island. TARNISHED PLANT BUG (*Lygus lineolaris*) and SPITTLEBUG (*Philaenus* sp.) were present in most strawberry plantings. GRAPE BERRY MOTH (*Polychrosis viteana*) damage reported from all areas of the State. RASPBERRY CANE BORER (*Oberea bimaculata*) caused severe damage in neglected raspberry plantings.

Turf, Ornamental and Shade Tree Insects: ELM LEAF BEETLE (*Galerucella xanthomelaena*) was unusually low in populations during June, which is the month of normal heavy feeding. However, summer feeding resulted in considerable elm leaf beetle damage throughout the State, although still less than normal. CANKERWORMS (*Alsophila* sp. and *Paleacrita* sp.) were less numerous than in previous years, and no serious outbreaks came to our attention. The central New York cankerworm outbreak has at least temporarily subsided. MITE populations in general were lower than normal. SPRUCE SPIDER MITE (*Oligonychus ununguis*) and SOUTHERN RED MITE (*Oligonychus ilicis*) in particular caused little damage in the spring and summer. Late summer and fall populations were higher, and there are considerable populations of overwintering eggs. EUROPEAN RED MITE(*Metatetranychus ulmi*) eggs abundant on elm and rosaceous ornamentals. Live adult female spruce spider mites were still active on October 22, 1956 but in very low numbers. Mites on elm (eriophyids, *Eotetranychus carpini*, *Metatetranychus ulmi*) were slow in developing so that damage was not evident until late summer, and damage averaged less than normal. APHIDS on shade trees (elm, oak, sycamore, willow) were abundant in late summer. JAPANESE BEETLE (*Popillia japonica*) averaged less than normal, but in isolated locations, particularly new western New York areas, damage was severe. Turf damage by grubs was not severe. In late summer SOD WEBWORM (*Crambus* sp.) populations increased to damaging levels on Long Island. In late summer butternut and walnut trees in central New York were defoliated by WALNUT CATERPILLAR (*Datana integerrima*). During early October the OAK SKELETONIZER (*Bucculatrix ainsliella*) was abundant on oaks in Ithaca, and a few larvae were active as late as October 22. In contrast, several boring insects were more abundant and damaging than normal, probably as a result of the 1954 and 1955 drought effects on tree vitality. *Ips pini* and *Pissodes approximatus* killed red pines in western, central and eastern New York. Scotch pine was also killed by *P. approximatus*. The WHITE PINE WEEVIL (*Pissodes strobi*) was abundant and damaging. Reports from Long Island noted "borers more abundant than normal." DUTCH ELM DISEASE incidence and ELM BARK BEETLE populations remained high and losses continue severe particularly in western, central, and eastern New York.

Floriculture Crop Insects: Resistant TWO-SPOTTED SPIDER MITES (*Tetranychus telarius*) continued to be most serious pest of floricultural crops in New York State. Resistance to the phosphates, Aramite, Chlorobenzilate, Chlorobenzilate combinations, and in some cases Kelthane, is present on roses. THRIPS, generally a problem, were not as severe because of the cool weather. SLUGS, about ten species, continued to be a problem on most crops.

Livestock Insects: HOUSE FLY (*Musca domestica*) were less numerous than usual during the early summer of 1956. Numbers rose about August 1 and continued well into October due to warm fall weather. HORSE FLIES (*Tabanus* spp.) and DEER FLIES (*Chrysops* spp.) have been below normal in numbers during the period of 1954-56. A brief survey of the State in 1955 revealed no areas where the flies were numerous enough that control measures were required. Several more cases of CHORIOPTIC

MANGE in cattle were reported in the Ithaca area than during the past two years. For the State as a whole chorioptic mange is far below the incidence during the 1946-50 period when near outbreak conditions existed. More cases of SARCOPTIC MANGE in hogs were reported in 1956 than in 1955. HORN FLIES (Siphona irritans), STABLE FLIES (Stomoxys calcitrans) and CATTLE GRUBS (Hypoderma spp.) apparently were low in numbers during 1956.

SUMMARY OF INSECT CONDITIONS - 1956

ILLINOIS

This summary is a condensation of a more complete and detailed report prepared by Clarence E. White. The original report was based on data collected by Clarence E. White, H. B. Petty, Steve Moore, and cooperators throughout the State.

Clover and Alfalfa Insects: CLOVER LEAF WEEVIL (Hypera punctata) larval populations were lower in 1956 than in 1955. However, the number of adults found in the fall of 1956 was higher than in 1955. Disease was not as prevalent in 1956 as in 1954 and 1955. CUTWORMS - The variegated cutworm (Peridroma margaritosa) was scarce again in 1956. No damage was reported. Other cutworms probably did a small but unestimable amount of damage. A FLEA BEETLE (Phyllotreta zimmermanni) seriously damaged one field of alfalfa. GARDEN FLEAHOPPERS (Halticus bracteatus) averaged 52 adults per sweep in one alfalfa field. The alfalfa had a yellowed, unthrifty appearance probably caused by the feeding of this insect. GRASSHOPPERS (mainly Melanoplus femur-rubrum, M. mexicanus, and M. differentialis) - The fall survey showed the average numbers of adults per square yard were as follows: northwest section approximately 6.5, northeast 3.7, west 6.9, central 1.4, east 1.5, west-southwest 3.5, east-southeast and southeast each 0.9. An estimated 70,765 acres of crop land were treated. The estimated profit was $353,825. GRASSHOPPERS (Tettigoniidae) were more abundant in western Illinois than they have been anywhere in the State for several years. LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) adults gradually increased from a state average of 0.44 per 100 sweeps April 30-May 3 to 20 per 100 sweeps June 4-7. Very few fields had 100 percent of the stems infested with larvae. The State average was approximately 28 percent of the stems infested May 21-24, 1956 compared with 58 percent infested May 16-19, 1955. MEADOW SPITTLEBUG (Philaenus leucophthalmus) - The full potential of spittlebugs apparently never developed in northern Illinois where populations were the heaviest. This was probably due to a period of warm weather followed by a cold, wet period and partly due to insecticide treatments. The fall survey showed the greatest concentration of adults is still located in the northern two tiers of counties. The average population in this area is approximately the same as it was in 1955. There was a substantial increase in populations all along the eastern border of the State as far south as Wabash County. One interesting development this season was the finding of a second-instar nymph August 20. An estimated 19,663 acres were treated at an estimated profit of $39,662. PEA APHIDS (Macrosiphum pisi) were much more abundant and destructive than in 1955. During March and April as many as 150 pea aphids were found per square foot in some fields. During the same period of 1955 the maximum number found was 4 per square foot and in 1954 it was 196 per square foot. Severe damage also occurred in 1954. By April 16-19, as many as 250 per sweep were found and by May 28-31 as many as 1600 per sweep were found in some fields. A survey made October 15-26 showed an average of 414 pea aphids per sweep with one field having 3600. Damage, especially to alfalfa, was severe during the last half of May and was apparent again in October. An estimated 75,000 acres were treated at an estimated profit of $225,000. ALFALFA PLANT BUG (Adelphocoris lineolatus) adults first appeared in the fields the week of June 4-7. The population was lighter than 1955. RAPID PLANT BUG (Adelphocoris rapidus) adult populations appeared to be about the same as in 1955. TARNISHED PLANT BUG (Lygus lineolaris) adult populations gradually increased until the State average reached 138 per 100 sweeps May 28-31. Plant bugs undoubtedly caused light to moderate damage in red clover seed fields. POTATO LEAFHOPPER (Empoasca fabae) - Females of Empoasca, probably fabae, were first found in Illinois April 26. Populations throughout the State were running from 0 to 470 with an average of 104 per 100 sweeps May 14-17 at which time males definitely identified as E. fabae were plentiful. About 20 percent of all alfalfa fields in the northwest section of the State were yellowed and stunted before the third cutting was taken from the fields. There was also a fair amount of yellowing in the southeast and east-southeast sections with scattered fields affected in other sections. An estimated 28,268 acres were treated at an estimated profit of $141,340. SPOTTED ALFALFA APHID was first found in the State July 12, 1956 near Murphysboro, Jackson County, by Steve Moore. The next collections were made September 5 at Flora and September 6 at Vandalia. These two collections were made during our fall spittlebug survey. This survey covered 34 counties evenly distributed over the State from the northern border to, and including, the counties of Pike, Macoupin, Fayette, Clay and Wabash. No spotted alfalfa aphids were found in any other field. Unfortunately this survey did not cover the area which was later found to be heavily infested. Surveys made September 13-14 and in October showed the heaviest infestations were in the southeast and southwest sections and along the Mississippi Valley as far north as Hamilton, Hancock County. Counts of 1,000 to 7,000 per sweep were common in this area and the top growth was completely killed in many fields. A survey December 27-30 showed that some of these fields had put out a little new top growth late in the season. Spotted alfalfa aphids were found December 27-30 in the east-southeast, southwest and southeast sections. An estimated 3,622 acres were treated at an estimated profit of $23,543. SWEETCLOVER APHID (Myzocallidium riehmi) was, to the best of our knowledge, collected for the first time in Illinois May 1, 1956 by Clarence White at Dix, Jefferson County. On June 2, G.C. Decker collected it at Mattoon, Coles County. Since that time it has been taken at several locations in the State. The largest populations were found August 28 when 1300 per 100 sweeps were found at Atkinson, Henry County, and September 14 when 6,000 per 100 sweeps were found at Belle Prairie, Hamilton County. YELLOW CLOVER APHID (Pterocallidium trifolii) was found in all sections of the State. Populations were usually less than 40 per 100 sweeps but in June and July occasional fields went as high as 500 and in late August,1 field had 1300 per 100 sweeps.

Corn Insects: BILLBUGS (Calendra spp.) damaged a few fields in the central and west-southwest sections of the State. CHINCH BUGS (Blissus leucopterus) - Several fields were seriously damaged by adults. There were also scattered local infestations of nymphs in the northeast section. An estimated 12,647 acres were treated at a profit estimated at $50,589. CORN EARWORM (Heliothis zea) appeared to be a little more abundant than in 1955. CORN FLEA BEETLES (Chaetocnema pulicaria) damaged corn throughout the southern half of the State. Many fields had to be treated or replanted. Populations as high as 20 per plant reported. CUTWORMS - BLACK CUTWORM (Agrotis ypsilon) did much damage in the northern half of the State and much replanting had to be done. There was also damage and a little replanting necessary in southern Illinois. An estimated 55,382 acres were treated at a profit of $221,528. An estimated 40,017 acres had to be replanted. EUROPEAN CORN BORER (Pyrausta nubilalis) - An estimated 665,605 acres were treated to control this pest. Estimated profits from treatments were $3,887,133. The fall survey showed a big decrease in borer numbers compared with 1955 figures. GRAPE COLASPIS (Colaspis sp.) damaged 80 percent of the plants in one field in northeastern Illinois. NORTHERN CORN ROOTWORM (Diabrotica longicornis) adults seriously damaged the silks on one riverbottom field of corn. From 0 to 20 percent of the plants in the northwest section were infested by larvae of this species June 18-21. Reports of damage in other sections of the State were received after that time. WHITE GRUBS (Phyllophaga spp.) damaged a few fields of corn. WIREWORMS damaged many fields of corn in the central and northeast sections with scattered fields reported elsewhere. An examination of the roots and ground around the roots of 6 corn plants in a stunted spot about 20 feet in diameter June 27 showed 6 rootworms, 1 colaspis larvae, and 19 histerid beetle larvae. Rootworms and colaspis were found toward the outer edge of the spot with most of the histerids being found around the plant roots toward the center of the spot. Whether the histerids were actually feeding on and cleaning out the infestation of rootworms is not known.

Grain Insects: ARMYWORMS (*Pseudaletia unipuncta*) damaged several fields of grain, mostly barley, in southern Illinois. Many fields were treated in this area. CHINCH BUG (*Blissus leucopterus*) continued its downward trend with fewer in 1956 than in 1955. The fall survey showed only six counties listed as severe or very severe compared with 9 in 1955, and 19 in 1954. An estimated 6,324 acres were treated at an estimated profit of $25,295. ENGLISH GRAIN APHID (*Macrosiphum granarium*) was present on wheat in the southern half of the State. Aphids also were present on oats in the northern half of the State. In some instances the English grain aphid was mixed with APPLE GRAIN APHID (*Rhopalosiphum fitchii*), PEA APHID (*Macrosiphum pisi*) and GREENBUG (*Toxoptera granarium*). There were 1 or 2 reports of greenbug damaging grain. HESSIAN FLY (*Phytophaga destructor*) caused little or no damage to wheat in 1956. The average percentage of tillers infested by puparia for the last three years was as follows: 1954 - 1.3 percent; 1955 - 5.5 percent; 1956 - 10.04 percent. The average number of puparia per 100 tillers during the same three years was 1954 - 1.52, 1955 - 5.75, 1956 - 15.49. WHEAT JOINTWORM (*Harmolita tritici*) increased in numbers and spread northward again in 1956.

Grass Insects: ARMYWORMS (*Pseudaletia unipuncta*) - Grass everywhere grew rank and luxuriantly and gave the moths plenty of favorable egg-laying sites which dispersed the larvae over a wide area and probably helped in preventing an armyworm outbreak. Larvae, however, apparently never reached maturity due to an abundance of parasites and probably some disease. GRASSHOPPER (*Melanoplus* spp.) — Due to a luxuriant growth of grass throughout the season migrations from grass were at a minimum. A WEEVIL (*Centrinaspis* spp.) seriously damaged some red-top seed fields. As many as 20 adults per square foot were reported.

Soybean Insects: BEAN LEAF BEETLE (*Cerotoma trifurcata*) - Some damage was reported and some fields were treated with insecticide in the southern half of the State. CURCULIOS were reported as numbering hundreds per 6 linear feet of row and damaging soybeans in one field. No curculios were present in nearby soybean fields. This was probably *Sitona hispidula*, damaging beans where clover sod was turned under. SEED-CORN MAGGOT (*Hylemya cilicrura*) damaged seedling soybean plants in the east-southeast and central sections of the State. WHITE GRUBS (*Phyllophaga* spp.) damaged several fields of soybeans.

Beneficial Insects: DAMSEL BUGS ranged from 0 to 60 per 100 sweeps. Just how much this insect helps in controlling clover and alfalfa pest species is not known. LADY BEETLES, mostly *Hippodamia convergens*, *H. parenthesis* and *Coleomegilla fuscilabris* adults varied from 20 to 280 per 100 sweeps in early June. Four hundred larvae per 100 sweeps was the greatest number of larvae found in any legume field up to June 14. Casual observations in September and October indicated that larval numbers were much higher than earlier in the season. NEUROPTEROUS larvae (*Chrysopa* sp.) were numerous in fields infested by spotted alfalfa aphid. SYRPHID fly larvae were very commin in fields infested by pea aphids and spotted alfalfa aphids.

Livestock Insects: A survey was made in northwestern Illinois to determine the percentage of cattle infested with grubs, lice, and mange. COMMON CATTLE GRUB (*Hypoderma lineatum*) infested 12 percent of the dairy cattle under two years of age and 8 percent of those over 2 years of age. Seventy percent of the native beef cattle under 2 years of age were infested. Lice infested 62 percent of the dairy cattle under 2 years of age, 28 percent of the dairy cattle over 2 years of age, and 64 percent of the beef cattle over 2 years of age. MANGE was not found on either dairy or beef cattle.

Ornamental and Shade Tree Insects: BAGWORMS (*Thyridopteryx ephemeraeformis*) were very abundant throughout most of the State and severely defoliated many trees and shrubs. ELM LEAF BEETLE (*Galerucella xanthomelaena*) was fairly abundant in the southern half of the State. FALL WEBWORM (*Hyphantria cunea*) was very noticeable in many parts of the State. LOCUST LEAF MINER (*Chalepus dorsalis*) was very abundant in the central area and practically defoliated the locust trees.

SUMMARY OF INSECT CONDITIONS - 1956

OHIO

Submitted by C.R. Neiswander

Forage Crop Insects (C.R. Weaver): MEADOW SPITTLEBUG (*Philaenus leucophthalmus*) infestations ran 1 to 3 nymphs per stem in the area of infestation. Heaviest infestations were in the northeast section with central and central southwest also having economic infestations. Cool weather during most of April delayed hatching. Legume growth was abundant before nymphs appeared. Percent damage to total yield was therefore much less than in previous years. First cutting red clover and alfalfa loss was estimated at 5 percent, $3,850,000. Fall populations of adults were somewhat larger than in 1955. (CEIR 6(41): 977). LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) continued to increase in numbers and was prevalent on all red clover sampled. Average of 0.5 to 1.5 buds per stem was damaged. Estimated loss to first-cutting red clover, 3 percent, $1,600,000. POTATO LEAFHOPPER (*Empoasca fabae*) failed to build up in second-cutting alfalfa until the later stages. Damage was therefore restricted. No serious infestations were evident on third cutting. Estimated loss to second-cutting alfalfa, 1 percent, $250,000. CLOVER ROOT BORER (*Hylastinus obscurus*) populations were definitely reduced due to prolonged cold, wet weather in the spring. Borer flight, egg deposition and development were delayed and reduced. Resulting summer populations of borers averaged less than 50 percent of 1955 infestation (CEIR 6(43): 1009). Estimated damage 5 percent of second-cutting red clover, $1,250,000. PEA APHID (*Macrosiphum pisi*) maintained fair populations in the spring and fall but no epidemic was reported. No estimate of damage was made. SWEETCLOVER WEEVIL (*Sitona cylindricollis*) was present in the usual numbers, damaging about 25-50 percent of new seedlings but causing little ultimate loss. VETCH BRUCID (*Bruchus brachialis*) was reported from Ohio for the first time, although it has probably been present for some time (CEIR 6(41): 979). No infestations of ALFALFA WEEVIL (*Hypera postica*) or the SPOTTED ALFALFA APHID were found in Ohio in 1956.

Corn Insects (L.H. Ralston): EUROPEAN CORN BORER (*Pyrausta nubilalis*) estimated damage $2,551,000 (2 percent per borer in fall). First-brood borer populations were unusually high in scattered fields in central Ohio. Fall populations fell from 124 borers per hundred stalks in 1955 to 53 borers per hundred stalks this fall. The decline is probably due to low pupation of first brood borers, which ranged from 4 to 20 percent in most fields. Tha small amount of pupation apparently was a result of low summer temperatures. CORN EARWORM (*Heliothis zea*) did little damage to field corn but early infestations were apparently above average in sweet corn in northern Ohio. Most damage in market corn resulted from lower prices as a result of infestations and from a sharp decrease in demand for infested corn. Loss to earworm in sweet corn estimated at $370,000.

Apple Insects(C.R. Cutright): CODLING MOTH (*Carpocapsa pomonella*) was a minor problem in 1956. EUROPEAN RED MITE (*Metatetranychus ulmi*) was the most severe and most expensive pest of the season. TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) was of little importance. Infestations of the ROSY APPLE APHID (*Anuraphis roseus*) and the APPLE APHID (*Aphis pomi*) were generally light. RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) was severe in some orchards , but light in others. APPLE MAGGOT (*Rhagoletis pomonella*) was injurious in some commercial orchards and very severe on poorly sprayed trees. PLUM CURCULIO (*Conotrachelus nenuphar*) was not severe in sprayed orchards.

Estimated loss due directly to apple pests - 1956

Codling moth	$ 50,000
Orchard mites	80,000
Plum curculio	20,000
Red-banded leaf roller	30,000
Apple maggot	50,000
Aphids	10,000
Others	5,000
Total	$245,000

Cost of insect control. The Ohio crop of 1956 was approximately 3,000,000 bushels. The estimated cost of 25 cents per bushel for insect and mite control is apportioned as follows:

Codling moth	$450,000
Orchard mites	150,000
Plum curculio	30,000
Red-banded leaf roller	30,000
Apple maggot	50,000
Aphids	20,000
All others	20,000
Total control costs	$750,000
Loss in spite of control practices	245,000
Total	$995,000

Stone Fruit Insects (R.W. Rings): CATFACING INSECTS continued to be the most damaging group of insects attacking peaches. TARNISHED PLANT BUG (*Lygus lineolaris*) and PLUM CURCULIO (*Conotrachelus nenuphar*) are the most important species which produce deformed, scarred and gummy fruits. Several species of STINK BUGS, *Euschistus servus*, *E. tristigmus*, *E. variolarius*, *Acrosternum hilare* and *Thyanta custator*, caused little injury as individual species but the combined injury was of economic importance in most southern areas. OAK PLANT BUGS (*Neolygus omnivagus* and *N. quercalbae*) caused severe injury in northern orchards which were planted near their host plants. PLUM CURCULIO injury averaged less than 1 percent in commercial peach orchards. Populations were slightly lower than in 1955. ORIENTAL FRUIT MOTH (*Grapholitha molesta*) damage was very light generally but one grower reported difficulty in obtaining control on peaches with the recommended schedule. Twig and fruit infestations were low even in unsprayed orchards in most of the State. EUROPEAN RED MITE - Difficulty in controlling parathion resistant mites was reported by a few growers in the north central part of the State but populations were light in most orchards. LESSER PEACH TREE BORER (*Synanthedon pictipes*) was quite destructive in a number of orchards in the northern portion of the State where it was associated with peach canker. PEACH TREE BORER (*Sanninoidea exitiosa*) populations are quite low in commercial orchards and have been adequately controlled with DDT trunk sprays. CHERRY FRUIT FLIES (*Rhagoletis cingulata* and *R. fausta*) were less abundant in 1956 as compared with 1955, chiefly because of increased interest and increased spraying activities in northern Ohio.

Vegetable Crop Insects (J.P. Sleesman): CABBAGE CATERPILLARS (*Pieris rapae* and *Trichoplusia ni*) were above normal in populations generally. MEXICAN BEAN BEETLE (*Epilachna varivestis*) populations were light except in a few localized areas. Infestations of the TOMATO FRUITWORM (*Heliothis zea*) and DROSOPHILA were light, especially in tomatoes grown for processing. Striped cucumber beetles, root maggots, aphids, onion thrips, and two-spotted spider mites were of average importance. POTATO LEAFHOPPER populations on unsprayed potatoes were above normal, but POTATO FLEA BEETLE (*Epitrix cucumeris*) populations were below average.

Vegetable Crop Insect Losses - 1956

Crops	Cost of insect Control	Loss due to insects	Total
Potatoes	$ 750,000	$100,000	$ 850,000
Tomatoes	160,000	100,000	260,000
Cucumbers & melons	80,000	50,000	130,000
Snap & lima beans	75,000	32,000	107,000
Cabbage	60,000	28,000	88,000
Other vegetable crops	20,000	40,000	60,000
Total	$1,145,000	$350,000	$1,495,000

Turf Pests (J.B. Polivka): The extremely cool and wet summer prolonged the JAPANESE BEETLE (*Popillia japonica*) flight period and resulted in the entering of hibernation of many partially-grown larvae. *Phyllophaga* and *Cyclocephala* grubs were more numerous in central and east central Ohio than in 1955. GREEN JUNE BEETLE (*Cotinis nitida*) larvae damaged much turf in the Cincinnati area. Earthworms were very numerous in turf areas, making mowing difficult in late fall.

Insects in Nurseries and on Shade and Ornamental Plants (R.B. Neiswander):

The Insects That Appeared Most Important on Forest and Ornamental Plants During 1956

1. Spruce spider mite
2. Bagworms
3. Juniper scale
4. European pine shoot moth
5. Grape mealybug on Taxus
6. European pine sawfly
7. Japanese beetle
8. Flatheaded apple tree borer
9. Flower thrips
10. Two-spotted spider mite

The Insects Recorded Most Often on Nursery Crops by State Nursery Inspectors in 1956

	No. times recorded
1. Spruce spider mite	185
2. Grape mealybug (on Taxus)	148
3. Bagworms	137
4. European pine shoot moth	118
5. Juniper scale	83
6. Two-spotted spider mite	81
7. Azalea mite	64
8. Tip dwarf mite	48
9. Maple bladder gall	41
10. Oystershell scale	31

Prevalence of Insects in 1956 (D.L. Goleman)

Abundant

- Boxelder plant bug
- European red mite
- Clover mite
- Red-banded leaf roller
- Ants
- Cluster flies
- Millipedes
- Slugs
- Bagworms
- Japanese beetle

Above Normal

- Spittlebug
- Elm leaf beetle
- Sweetclover weevil
- Southern June beetle
- Apple aphids
- Tent caterpillar
- Plum curculio
- Pine sawfly
- Corn flea beetle
- Clover root borer
- Chiggers
- Grain weevils
- Termites
- Apple maggot
- Fruit flies
- Nitidulid beetles
- Two-spotted mite
- European pine shoot moth
- Corn earworm
- European corn borer (1st brood)
- Stable flies
- Cherry fruit fly

Normal

- Armyworm
- Crickets
- Hessian fly
- Cutworms
- Corn silk beetles
- Grasshoppers
- Apple leafhopper
- Pea aphid
- Oriental fruit moth
- Willow aphid
- Clover bud weevil
- Clover leaf weevil
- Potato flea beetle
- Hackberry psyllid
- European corn borer (2nd brood)
- Powder post beetle
- Grape berry moth
- Mexican bean beetle
- Blue bottle flies
- Asparagus beetle
- Lygus bugs
- Horn flies
- Mosquitoes
- Carpet beetles
- Clothes moth
- Cattle grubs
- Rose-slugs
- White grubs
- Fleas
- Wireworms
- House flies
- Cockroaches
- Cucumber beetles
- Peach tree borers
- Potato leafhopper

Below Normal

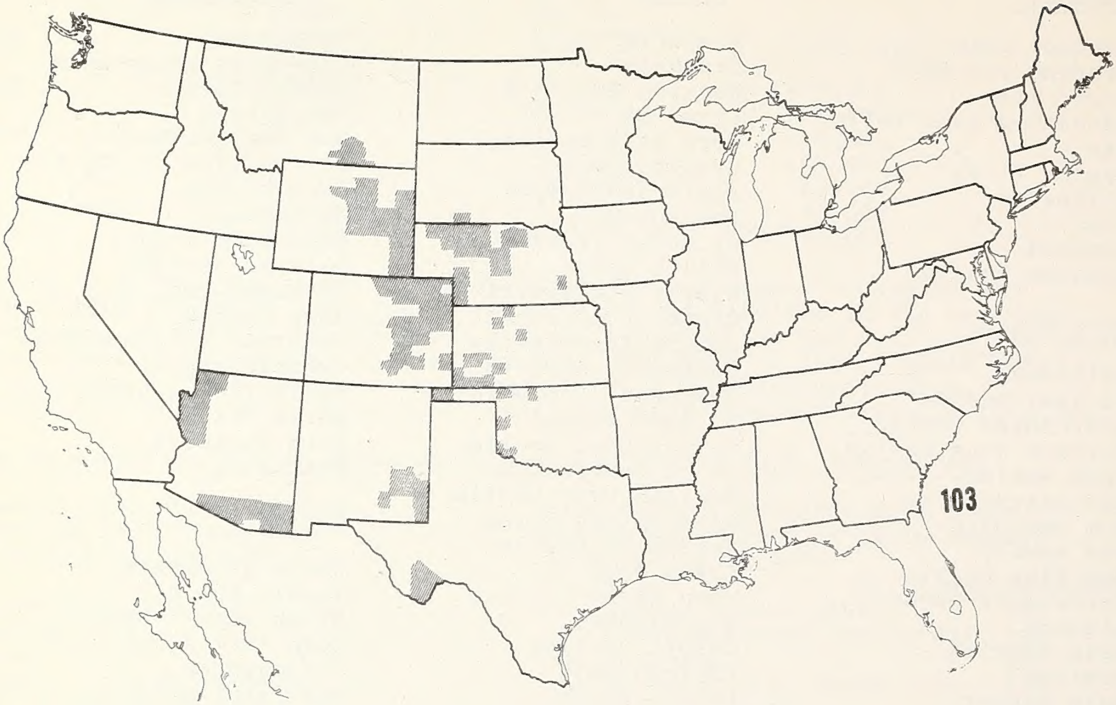
- Chinch bug
- Angoumois grain moth
- Walnut datana
- Oat thrips
- San Jose scale
- Cattle lice
- Rose thrips
- Hornworms
- Seed-corn maggot
- Blister beetles
- Cabbageworms
- Rose chafer
- Colorado potato beetle
- Cabbage maggot
- Apple flea weevil
- Horse flies
- Corn rootworm
- Pear-slug

Scarce

- Wheat jointworm
- Tomato aphid
- Black cherry aphid
- Corn leaf aphid
- Cankerworms
- Fall armyworms

DISTRIBUTION OF RANGE GRASSHOPPERS

Parapomala wyomingensis (Thomas)



Phlibostroma quadrimaculatum (Thomas)